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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,269	02/05/2002	Jiangjun Zhang	OPLUX0105	9719

7590 02/18/2004

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EXAMINER

WOOD, KEVIN S

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 02/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/068,269

Applicant(s)

ZHANG ET AL.

Examiner

Kevin S Wood

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-- Th MAILING DATE of this communication appears on the cover sheet with th correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,4-18 and 21-32 is/are rejected.
- 7) ☒ Claim(s) 2,3,19 and 20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 12. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 62. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 5, 6, 8, and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "one said electrodes" in the third line. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "one said electrodes" in the third line. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the limitation "one said electrodes" in the third line. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 recites the limitation "one said electrodes" in the third line. There is insufficient antecedent basis for this limitation in the claim.

There is only one electrode that has been claimed as near the trench floor and only one electrode claimed as near a sidewall. The examiner is unclear as to whether there is more than one electrode near each of the trench floor and a sidewall.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 4-7, 10, 12-18, 21-24 and 26-32 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication No. 2003/0108276 to Janssen.

Referring to claims 1, 12-18, and 26-32, Janssen discloses all the limitations of the claimed invention. Janssen discloses an optical switch including: a trench defined

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by two sidewalls (22,24) and a trench floor surface (26) extending across the intersection between an input optical fiber and two output optical fibers; a first electrode disposed near one of the two sidewalls (28) and a second electrode (32) disposed near the trench floor surface of the trench; an electrolytic solution (20) filled in the trench wherein the electrolytic solution contains cations of an electro-depositing mirror metal for responding to an electrical field applied to the first and second electrodes to form an optical reflective surface on one of the sidewalls for reflecting an optical signal (12) from the input optical fiber to another to another one of the output optical fibers (16). See Fig. 1 and its respective portion of the specification.

Referring to claims 4-6, 21, and 22, Janssen discloses all the limitations of the claimed invention. Janssen discloses an electromagnetic means (30,36) for applying the electric field to the electrodes for actuating the optical switch. It is inherent within the invention of Janssen that a negative field would be applied to the floor and top electrodes (32) in order to deactivate the optical switch and a negative electrical field would be applied to the sidewall electrode (28) in order to activating the optical switch. See Fig. 1 and its respective portion of the specification.

Referring to claims 7 and 23, Janssen discloses all the limitations of the claimed invention. Janssen discloses an antireflective coating applied to the sidewalls plates (22,24). See paragraph [0035].

Referring to claims 10 and 24, Janssen discloses all the limitations of the claimed invention. Janssen discloses that the sidewall electrode (28) is transmissive and that

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the trench floor electrode (32) may be transparent, but it isn't required to be transparent.

See paragraph [0035].

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0108276 to Janssen.

Referring to claims 8 and 9, Janssen discloses all the limitations of the claimed invention, except Janssen does not appear to specifically disclose that a positive electric field is applied to the electrode near the trench floor surface for enhancing an operation of actuating the optical switch and that a positive electrical field is applied to

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the electrode near one of the sidewalls for enhancing the deactivating of the optical switch. It is known in the art that applying the positive electrical field to an electrode will cause the electrode to repel the metal ions from the electrode. It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a positive electric field to the electrode near the trench floor surface when activating the optical switch and to apply a positive electric field to the electrode near the sidewall when deactivating the optical switch, for the purpose of repelling the metal ions from a switch surface where they are not desired in order to allow more metal ions to coat the surface where they are desired. The switch would experience less of the unwanted attenuation if there were no metal ions on the sidewall surface when the switch is deactivated and the switch would experience more of the desired reflectivity if less of the ions remained on the trench floor when the switch is activated.

10. Claims 11 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0108276 to Janssen in view of U.S. Patent No. 6,449,406 to Fan et al.

Referring to claims 11 and 25, Janssen discloses all the claimed limitations, except Janssen does not appear to specifically disclose that the optical switch and the optical fibers are supported on a substrate. Fan et al. discloses an optical switching device where input and output optical fibers are mounted on a substrate along with the optical switches, in order to secure the components in position and maintain the desired alignment between the optical fibers and the optical switches. See Fig. 10A. It would have been obvious to one having ordinary skill in the art at the time the invention was

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made to support the optical fibers and the optical switches on a substrate in order to secure the optical fibers and the optical switches in the desired position and to maintain the desired alignment between the fibers and the switches.

Allowable Subject Matter

11. Claims 2, 3, 19, and 20 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

Referring to claims 2, 3, 19, and 20, the primary reason for the claims being allowable is the inclusion of at least one halide and/or pseudohalide compound in the electrolytic solution in all the claims.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,215,920 to Whitehead et al.

This reference disclose an optical switch using electrodes to control the location of particles in order to cause input light to be either reflected or transmitted depending on the state of the switch.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin S Wood whose telephone number is (571) 272-2364. The examiner can normally be reached on Monday-Thursday (7am - 5:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 307-0956.

KSW


Brian Healy
Primary Examiner